

CLAIMS

1. **Canonical general response bandpass microwave filter** comprising a plurality of resonator cavities arrangement in rows, each resonator cavity being coupled with at least a sequential adjacent resonator cavity for providing a main path for an electromagnetic energy to be transmitted from a first resonator cavity (1) to a last resonator cavity, the electromagnetic energy being injected in the first resonator cavity (1) by an input terminal (20) through an input coupling and the electromagnetic energy being extracted from the last resonator cavity by an output terminal (21) through an output coupling, the first and last resonator cavities are non-sequential cross coupled adjacent cavities; **characterized** by that the resonator cavities are adapted to be arranged in more than two adjacent rows and more than two adjacent columns.
2. **The microwave filter** according to claim 1, including more rows than columns.
3. **The microwave filter** according to claim 1, comprising more columns than rows.
4. **The microwave filter** according to claim 1, including an equal number of columns and rows.
5. **The microwave filter** according to claim 1, comprising at least a resonator cavity is adapted to couple a sequential adjacent resonator cavity and a non-sequential adjacent cavity.
6. **The microwave filter** according to claim 5, including at least a resonator cavity is adapted to couple at least two sequential adjacent resonator cavities and at least a non-sequential adjacent cavities.
7. **The microwave filter** according to claim 6, including at least a resonator cavity is adapted to couple at least two sequential adjacent resonator cavity and at least two non-sequential adjacent cavity.
8. **The microwave filter** according to claim 6, comprising at least a resonator cavity is adapted to couple at least two sequential adjacent resonator cavities, at least a non-sequential adjacent cavities and at least a non sequential non adjacent cavities.
9. **The microwave filter** according to claim 7, comprising at least a resonator cavity is adapted to couple at least two sequential adjacent resonator cavities, at least two non-sequential adjacent cavities and at least a non sequential non adjacent cavity.
10. **The microwave filter** according to claim 1, including at least a row is adapted

to have a lower number of resonator cavities than another row.

11. **The microwave filter** according to claim 1, includes at least a column is adapted to have lower number of the resonator cavities than another column.

12. **The microwave filter** according to any of the preceding claims, wherein the
5 main path passes through more than two rows and two columns of resonator cavities.

13. **The microwave filter** according to any one of claims 1 to 12, wherein each resonator cavity comprises a dielectric resonator.

14. **The microwave filter** according to any one of claims 1 to 12, wherein each resonator cavity is an empty wave guide cavity.

10 15. **The microwave filter** according to any one of claims 1 to 12, wherein each resonator cavity is a coaxial resonator.